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2nd quarter valley inflation remains moderate

Phoenix area inflation during second quarter 1989 was only slightly higher than during the prior quarter (see Table 1). As expected, the 1.3 percent seasonally adjusted increase in prices of Phoenix area goods and services was within the 1.0 to 1.5 percent quarterly range that is likely to persist into the foreseeable future.

Before seasonal adjustment, the Metropolitan Phoenix Consumer Price Index climbed 1.8 percent to 125.9 (1982–84 = 100). The annual increase was 5.0 percent, slightly less than the rate at the end of the first quarter.

COMPONENT INDEXES

As in the first quarter, the transportation and food and beverages categories were most responsible for the CPI advance. The sharp jump in gasoline prices in April accounted by itself for more than one-fourth of the overall increase. Excluding the gasoline category, the inflation rate was just 0.9 percent, less than the first quarter's 1.1 percent and the aberrantly high 2.2 percent of fourth quarter 1988.

Food and Beverages

The second quarter's advance was equal to that of the first quarter and the fifth straight gain of at least 1.3 percent. The composition of the second quarter's increase was much different, however. Food at home price increases slowed considerably to 1.4 percent, the least since fourth quarter 1987, while food away from home and alcoholic beverages price gains accelerated, the former to the highest rate since seasonal adjustment began in 1984.

Within the grocery items category, rapid inflation in the fruits and vegetables grouping continued, with the second quarter's 4.1 percent gain the sixth straight of at least 3 percent. The annual change through the second quarter was 30 percent. The meats, poultry, fish and eggs subcategory also experienced another large rise, with the 2.2 percent gain the fifth straight of at least 1.6 percent.

Little Change is Anticipated

In contrast, modest changes were recorded in the other subcategories, including a decline in prices of dairy products (see Table 2).

Housing

Housing costs rose a modest 0.4 percent, following a slight decrease during the first quarter. Consumers continued to benefit from the high vacancy rates in both single-family and multifamily housing. Homeowner's costs increased a moderate 0.7 percent while renters' costs advanced 0.6 percent. Rental rates for apartments again declined sightly.

Fuel and utility costs also dropped, with a major factor being the reduction in telephone rates. In contrast, prices of household furnishings and operations rose 1.7 percent.

Transportation

Despite the jump in gasoline prices, transportation costs climbed less than in the two prior quarters, though the 1.9 percent rate still was relatively high. Contributing to the increase were finance charges, which rose by the largest amount since 1984.

The net increase in the other subcategories was nil, as lower prices were available for a number of items, including public transportation.

Medical Care

Health care costs went up a relatively fast 2.3 percent in the second quarter. Health insurance premiums jumped for the second straight quarter, but hospital expenses moderated again, following large gains in 1988. The other subcategories continued an erratic quarter-to-quarter pattern, with large second quarter advances in

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TABLE 1

PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

		Seasonally Adjusted from Preceding Quarter					
Expenditure Category	*Relative Importance*	*1st 1988*	*2nd 1988*	*3rd 1988*	*4th 1988*	*1st 1989*	*2nd 1989*
ALL ITEMS	100.0	0.8	1.3	0.9	2.0	1.1	1.3
Food and Beverages	16.5	0.9	2.0	1.3	1.4	1.9	1.9
Housing	41.7	1.0	0.2	0.4	1.7	–0.1	0.4
Apparel and Upkeep	6.1	2.3	2.9	3.6	1.5	0.7	0.3
Transportation	19.3	–0.5	2.4	1.0	3.1	3.0	1.9
Medical Care	6.8	0.3	3.3	0.4	2.8	1.2	2.3
Entertainment	4.6	1.2	0.1	1.2	3.6	2.1	3.7
Other Goods and Services	5.0	2.2	0.9	0.8	1.1	1.2	1.4

TABLE 2

METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Second Quarter 1989

	Index (1982-84 = 100)		Percent Change from	
Expenditure Category	*Last Quarter*	*This Quarter*	*Last Quarter **	*Year-Ago Quarter*
ALL ITEMS	123.7	125.9	1.3	5.0
Food and Beverages	124.3	127.5	1.9	6.9
Food	123.5	126.8	2.2	7.3
Food at Home	128.1	131.4	1.4	9.8
Cereal and Bakery Products	140.5	140.8	0.6	7.2
Meats, Poultry, Fish, and Eggs	119.2	121.2	2.2	8.7
Dairy Products	116.2	114.7	–1.3	1.4
Fruits and Vegetables	171.3	190.7	4.1	30.3
Other Food at Home	117.3	118.0	0.6	5.0
Food Away from Home	118.3	122.0	2.8	4.5
Housing	116.6	118.2	0.4	2.4
Shelter	116.5	117.2	0.6	1.9
Renters' Costs**	116.5	117.2	0.6	–1.6
Homeowners' Costs**	120.5	121.3	0.7	3.5
Fuel and Other Utilities	114.5	120.3	–1.3	–0.1
Gas (piped) and Electricity	105.6	116.8	–1.0	0.6
Household Furnishings/Operations	118.0	119.4	1.7	5.7
Apparel and Upkeep	125.4	127.2	0.3	6.3
Transportation	124.6	127.7	1.9	9.1
Private Transportation	124.2	127.8	2.2	9.7
New and Used Cars	136.3	137.4	1.1	6.8
Motor Fuels	77.6	90.5	11.4	18.4
Public Transportation	121.9	122.4	–0.2	5.3
Medical Care	153.1	156.2	2.3	7.0
Entertainment	147.7	145.6	3.7	5.1
Other Goods and Services	135.9	138.1	1.4	4.5

*Seasonally adjusted
**Base period is second quarter 1983.

TABLE 3

METROPOLITAN PHOENIX AND UNITED STATES CONSUMER PRICE INDEXES
Second Quarter 1989

	Percent Change from Last Quarter*		Percent Change from One Year Ago	
Expenditure Category	*Phoenix*	*United States*	*Phoenix*	*United States*
ALL ITEMS	1.8	1.8	5.0	5.4
Food and Beverages	2.6	1.6	6.9	6.5
Housing	1.4	0.8	2.4	3.7
Apparel and Upkeep	1.4	4.4	6.3	3.5
Transportation	2.5	3.9	9.1	7.3
Medical Care	2.0	1.6	7.0	7.3
Entertainment	–1.4	1.0	5.1	4.8
Other Goods and Services	1.6	0.9	4.5	7.6

*Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University, in cosponsorship with Valley National Bank; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

non-prescription drugs and professional services, but a small increase in prescription drug prices.

Other Categories

Apparel and upkeep prices rose minimally, the second straight small advance following large gains throughout 1988. Prices of other goods and services again climbed by a moderate amount. In contrast, entertainment costs continued to rise rapidly.

COMPARISON AREAS

Before seasonal adjustment, inflation in the Phoenix area during the second quarter was identical to the national average. Higher inflation in food and beverages, housing and other goods and services was offset by lower inflation in apparel and upkeep, transportation, and medical care (see Table 3).

The annual inflation rate was comparable in the two areas. Lower inflation in housing and other goods and services in the Phoenix area was negated by higher inflation in apparel and upkeep and in transportation.

OUTLOOK

While the inflation rate clearly has accelerated during the last few quarters, the increase in the underlying rate has not been that steep and shows signs of stabilizing. Much of the higher rate has derived from prices of food and gasoline, neither of which is likely to see continued advances as large as those in recent quarters.

The quarterly increase in the Phoenix area CPI is likely to remain in the 1.0 to 1.5 percent range for the immediate future. Somewhat smaller gains in the transportation and food and beverages categories likely will be offset by slightly larger rises in the housing category than the nearly zero change during the first half of 1989. Housing inflation still should be good news to the consumer, however.

The annual inflation rate therefore should remain in the 5.0 to 5.5 percent range, resulting in an annual average of 5.2 percent in 1989.

– Tom R. Rex
Research Manager

Lower population growth is projected by DES

A new set of population projections has been generated by the Arizona Department of Economic Security (DES), the first comprehensive update since fall 1986. These figures form the state's "official" projections, which must be used by all state agencies and are widely used in the private sector as well.

Under the new assumptions, projected population growth is much lower in the metropolitan areas, especially in the Phoenix area, where the projected 1988-2000 growth rate dropped from 57 percent in the previous set of projections to 38 percent. Population projections for rural Arizona were hardly changed.

The lowered expectations result in part from the slow growth experienced since early 1987 and the likelihood of subpar population gains for at least another couple of years. The downward revision extends to annual growth rates years into the future, however. As discussed in the November 1988 issue of *Arizona Business*, the accuracy of long-term population projections in Arizona have been cyclical, matching the conditions of the time in which they were generated (see Figure 1).

The state's new figures are reasonably similar (see Table 1) to the population projections published by the CBR in the February issue of *Arizona Business*. Part of the difference in the projected population results from disagreement on the 1988 estimate. Beyond that, the DES figures show somewhat faster growth in the Tucson area and rural Arizona, but slightly smaller population gains in the Phoenix area than do the CBR projections. In all cases, the DES figures fall within the range defined by the CBR's low and high scenarios printed in the February article.

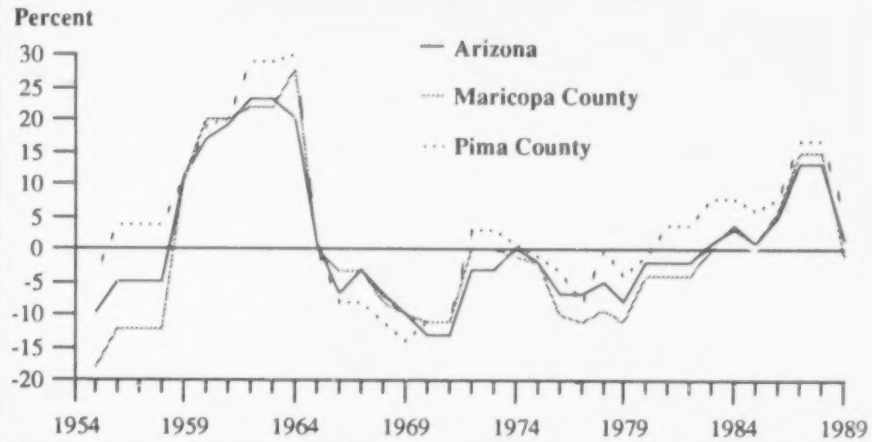
Historically, Pima County's growth has been overprojected in comparison to Maricopa County, as seen in the graph. The new projections may perpetuate this error, though the degree of any bias is relatively small.

Limited time and funding precluded fine tuning by DES of the new set of projections, which probably will remain in effect until 1991, when 1990 census data can begin to be incorporated into the projection process. In the meantime, the new projections can safely be used by public and private sector entities.

– Tom R. Rex
Research Manager

FIGURE 1

APPROXIMATE PERCENT ERROR IN PROJECTIONS OF POPULATION FIVE TO TEN YEARS IN FUTURE



Source: Center for Business Research, College of Business, Arizona State University. The past projections were made by a variety of sources, but many were obtained from the Arizona Statistical Review published annually by Valley National Bank. Percent errors after 1980 are estimated.

TABLE 1

COMPARISON OF POPULATION ESTIMATES AND PROJECTIONS
(In Thousands)

	1980	1988 Estimate		2000 Projection			2010 Projection		
	Census	*ASU*	*DES*	*ASU*	*New DES*	*Old DES*	*ASU*	*New DES*	*Old DES*
Total Population									
Maricopa County	1,509	2,015	2,036	2,815	2,801	3,252	3,570	3,490	4,052
Pima County	531	654	664	825	877	974	1,000	1,075	1,257
Non-urban Arizona	677	828	848	1,070	1,123	1,109	1,285	1,375	1,377
ARIZONA	2,717	3,497	3,548	4,710	4,801	5,335	5,855	5,940	6,686
Population Change									
Maricopa County	538	506	527	800	765	1,216	755	689	800
Pima County	180	123	133	171	213	310	175	198	283
Non-urban Arizona	223	151	171	242	275	261	215	252	268
ARIZONA	941	780	831	1,213	1,253	1,787	1,145	1,139	1,351

Source: Center for Business Research, College of Business, Arizona State University; Arizona Department of Economic Security, Population Statistics Unit; U.S. Department of Commerce, Bureau of the Census (1980).

Gross county product growth slowed in 1987

Economic growth slowed in 1987 in most of Arizona's counties. The disparity in growth rates between the Phoenix metropolitan area and the rest of the state shrunk, however, according to Gross County Product (GCP) estimates.

The GCP is heavily based on personal income figures prepared by the U.S. Department of Commerce. The receipt of 1987 data in June was accompanied by revisions to 1985–1986 estimates of personal income. Revised figures generally were lower, though not by large amounts. Last year's GCP report (*Arizona Business*, September 1988) discussed GCP methodology and described historic economic growth by county. This report will focus on data since 1982.

CURRENT DOLLAR GCP

Maricopa County's 1987 gross product of $38.9 billion accounted for 69 percent of the state total. Pima County's product added another 16 percent, leaving the 13 rural counties with just a 15 percent share. The GCP of three of the rural counties surpassed $1 billion (see Table 1), but no rural county's sectoral share exceeded 2 percent.

Despite the small overall share, rural Arizona contributed nearly 50 percent of the state's agricultural product and 75 percent of its mining output. Government also is disproportionately important to the rural counties. In contrast, FIRE (finance, insurance and real estate) has little presence in non-urban Arizona, making up just 6 percent of the state's total. FIRE is highly concentrated in the Phoenix area. Manufacturing in the rural counties makes up just 8 percent of the state total.

SECTORAL SHARES

Statewide, five of the nine major industries contributed between 13 and 18 percent each of the 1987 total gross product, providing a reasonably balanced economy, though most of these industries were highly dependent on population growth. Agriculture and mining accounted for just 3 percent and 2 percent, respectively, of the state's gross product.

In contrast, government alone made up nearly one-fourth of the gross product in rural Arizona. Agriculture and mining's shares were comparatively high: 7 and 11 percent, respectively.

In most rural counties, one industry is considerably larger than the rest. Examples, seen in Table 1, include:

- Apache — government (34%)
- Cochise — government (47%)
- Coconino — government (30%)
- Gila — mining (31%)
- Graham — government (34%)
- Greenlee — mining (82%)
- La Paz — agriculture (28%)
- Pinal — mining (25%)
- Santa Cruz — trade (35%)

Sectoral shares in some cases have changed substantially in recent years. Agriculture's problems in the first half of the 1980s led to much smaller sectoral shares in Apache, Graham and Yuma counties. Likewise, mining's difficulties through the mid-1980s caused noticeable declines in its share in Cochise, Gila, Graham, Mohave, Pima, Pinal and Yavapai counties. In contrast, mining's share rose in Greenlee County, the county that most dominated by the industry.

These declines in the old mainstays of the Arizona economy were offset by increasing sectoral shares in various industries. The services industry gained in Cochise, Gila, Mohave and Pima counties. Government's share rose in Gila, Graham and Pinal counties. TCPU (transportation, communication and public utilities) gained in Apache County and manufacturing advanced in Pinal County.

ECONOMIC GROWTH

Annual rates of change in inflation-adjusted GCP since the recession year of 1982 are shown in Table 2. Growth rates in the metropolitan counties slowed each year after the 1984 peak, but in most rural counties the rate of growth was erratic from year to year.

TABLE 1

1987 GROSS COUNTY PRODUCT

	Total in Millions	Sectoral Shares								
		Agric.	Mining	Constr.	Mftg.	TCPU	Trade	FIRE	Serv.	Govt.
Apache	$477	6%	0%	12%	6%	15%	7%	5%	17%	34%
Cochise	989	4	1	4	4	11	11	6	12	47
Coconino	1,114	3	2	6	9	9	16	7	19	30
Gila	426	1	31	5	15	7	11	5	10	14
Graham	170	12	1	5	3	7	17	9	14	34
Greenlee	201	1	82	2	1	2	2	1	2	6
La Paz	120	28	1	4	5	5	18	5	16	18
Maricopa	38,863	2	0	7	16	8	17	22	18	10
Mohave	693	1	4	10	14	10	19	12	18	13
Navajo	819	4	18	5	8	22	10	4	13	16
Pima	8,793	1	2	7	16	7	15	14	21	17
Pinal	1,252	10	25	5	12	6	10	6	8	19
Santa Cruz	287	3	0	3	13	11	35	9	11	15
Yavapai	845	3	9	10	9	8	17	10	19	16
Yuma	1,198	21	1	5	4	8	16	7	14	24
Non-urban	8,591	7	11	6	8	10	14	7	14	24
ARIZONA	56,248	3	2	7	15	8	16	18	18	13

Source: Center for Business Research, College of Business, Arizona State University.

The only county economies that expanded more rapidly in 1987 than in 1986 were La Paz and Mohave. Four counties endured a shrinking economy in 1987; Pima County experienced no growth.

In the first half of the 1980s, difficulties in the mining and agriculture industries had the effect of lowering growth rates in many counties. The adjusted gauge, excluding these industries, measured much more growth in most counties. In the five years after the recession year of 1982, the gross product fell in Greenlee County and rose by only small amounts in Gila and Graham counties.

While the adjusted GCP generally measured more growth than the overall measure from 1982 to 1987, the only counties with much difference between the measures in 1986-87 were La Paz and Pinal. Pinal County's growth rates are greatly different on the two measures over the five years. Traditionally dominated by the fast-declining mining and agriculture industries, the county experienced rapid growth in manufacturing and construction in the 1980s.

Growth rates for the state as a whole during the first five years of the expansion following the 1982 recession were led by the manufacturing and construction sectors. Government and agriculture lagged behind, and mining declined. The other industries — services, TCPU, trade, FIRE — experienced comparable growth, near the overall average rate. This pattern largely held in the two urban areas, but in rural Arizona, the growth rates of manufacturing, trade and FIRE all were somewhat lower.

OUTPUT PER EMPLOYEE

Dividing gross product by employment gives a measure of output per employee. This measure varies widely by industry, depending on such conditions as average wage, labor intensivity, income from sources such as interest and rentals, and profits. While overall output per employee was $31,100 in 1986 (the last year for which county employment figures are available from the U.S. Department of Commerce), it ranged as high as $81,100 in the mining industry. Also well above the average were TCPU and FIRE. The lowest output per employee figure was in the services industry, followed by trade.

Overall output per employee varied by county in part because of varying industrial mixes. Counties with greater shares of mining, FIRE and TCPU and/or lesser shares of services and trade will tend to have higher overall figures. County differences in output figures by industry add to the variation.

The highest output per employee was in Greenlee County, which derived more than 80 percent of its GCP from mining. Further, its output per employee in several other industries was higher than the state average. Maricopa County's output per employee was next highest; its sectoral figures were above the state average in almost all industries.

The lowest outputs per employee occurred in La Paz, Yavapai and Mohave counties. By sector, output per employee generally was lower than the state average in each of these three counties.

OUTLOOK

The Gross State Product growth in 1988 was virtually identical to that in 1987 (2 percent). This suggests that 1988 GCP growth probably will not be much different either. Maricopa County's growth probably slowed slightly, offset by somewhat faster growth in some rural counties. Performance during 1989 appears to be similar to that in 1988.

– **Tom R. Rex**
Research Manager

TABLE 2

INFLATION-ADJUSTED PERCENT CHANGE IN GROSS COUNTY PRODUCT

	1982	1983	1984	1985	1986	1987	1982-87	Adjusted 1982-87
Apache	0%	7%	12%	-6%	8%	2%	24%	29%
Cochise	-2	4	4	2	1	1	11	19
Coconino	-5	6	7	5	8	3	32	30
Gila	-16	-15	9	-2	-8	-4	-20	6
Graham	-6	-4	12	-10	3	2	2	13
Greenlee	-41	21	8	-15	-8	-6	-3	-24
La Paz	NA	NA	2	7	0	6	NA	NA
Maricopa	-1	8	12	10	7	3	47	48
Mohave	-10	5	12	13	2	4	41	51
Navajo	2	2	8	1	4	-2	13	28
Pima	-5	5	9	6	3	0	25	35
Pinal	-17	-19	15	-2	6	-1	-3	50
Santa Cruz	-7	2	9	5	7	5	31	31
Yavapai	-6	10	2	7	5	5	32	44
Yuma	1	NA	6	4	7	2	NA	NA
Yuma/La Paz	1	-2	6	5	6	2	17	23
Non-urban	-8	-2	8	2	4	1	14	30
ARIZONA	-3	6	11	8	6	2	37	43

NA: Not available; La Paz County created January 1, 1983, from a portion of Yuma County.

Note: Adjusted gross product excludes the contributions of the agriculture and mining industries.

Source: Center for Business Research, College of Business, Arizona State University.

Service sectors are leading job creators in 1980s

The greatest employment growth during the 1980s primarily has occurred in relatively low-paying service and support sectors. Basic industries — those that sell to customers outside the local area or otherwise import money into the area — generally lead the overall growth and development of an area. Most basic industries are relatively high-paying, such as manufacturing, mining, federal government and part of construction, but none of these industries are near the top of the 1980s growth industries. Of the lower-paying basic industries — agriculture and tourism — the hotel/motel sector was among the ten with the greatest employment gain.

The 1983-86 boom was dominated by construction-real estate and accented by service jobs, many with relatively low wages. When the inevitable down-cycle in construction-real estate occurred, not much was left to drive the economy. The result is the slow economic growth experienced during the last couple of years.

Employment always is an important indicator, but probably is more so in an area such as Arizona that experiences strong net in-migration. Because job growth leads population change, the nature of the job — its salary level and industry — plays a role in determining the nature of the area's overall growth.

The analysis in this article derives from 1970-87 total employment data provided by the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). Though not very timely — annual data are only available several months after year-end — the BEA data takes in all industries, including agriculture and military and reports it on a disaggregated basis. Further, the data includes self-employed and is consistent over time.

MAJOR INDUSTRIES

Total employment growth has centered on two industries — services and FIRE (finance, insurance and real estate) — both during the current economic cycle and during the last two decades. The highly cyclical construction industry showed an increase in sectoral share through 1987 (see Table 1), but this gain will have disappeared by the time 1989 data are available.

The growth of services and FIRE has been at the expense of the old mainstays of the Arizona economy: farming, mining and government. The manufacturing industry's sectoral share has declined as well. Except for durables manufacturing in the late 1970s, the manufacturing industry has grown slower than the overall Arizona economy since the late 1960s.

Basic industries in Arizona are farming, mining, manufacturing, part of construction, federal government and military, and tourism. With the possible exception of tourism, which spreads through several industries and is difficult to identify, none of the basic industries are keeping pace with the growth of the overall economy.

TABLE 1

TOTAL EMPLOYMENT SECTORAL SHARES, ARIZONA

		Change			
	1987	*1970-75*	*1975-82*	*1982-87*	*1970-87*
Farm	1.2%	–1.0	–0.7	–0.5	–2.2
Agricultural Services	1.4	0.2	0.0	0.1	0.3
Mining	0.8	–0.4	–1.2	–0.7	–2.3
Construction	7.3	–0.7	0.5	1.1	0.9
Non-durables Manufacturing	2.5	–0.1	–0.2	–0.2	–0.5
Durables Manufacturing	8.5	–1.5	1.1	–0.8	–1.2
Transportation, Communication, Public Utilities	4.1	–0.2	–0.1	–0.2	–0.5
Wholesale Trade	4.1	0.2	0.0	0.0	0.2
Retail Trade	17.4	0.2	0.4	–0.8	–0.2
Finance, Insurance, Real Estate	10.2	0.9	1.3	1.7	3.9
Services	26.8	1.5	2.6	2.9	7.0
Federal Government	2.5	–0.1	–1.0	–0.4	–1.5
Military	2.2	–1.1	–1.0	–0.6	–2.7
State and Local Government	10.9	2.0	–1.7	–1.6	–1.3

Source: Center for Business Research, College of Business, Arizona State University, from U.S. Department of Commerce, Bureau of Economic Analysis data.

INDUSTRIAL SUBSECTORS

Manufacturing

Non-durables manufacturing has experienced slightly less growth than the overall economy since 1970. Its largest sub-industry, printing and publishing, has grown rapidly since the mid-1970s, but pays only an average wage and is less basic in nature than most manufacturing industries.

Durables manufacturing in Arizona is concentrated in four categories: machinery, electronics, instruments and transportation equipment. Each is a high-paying industry, basic in nature.

Non-electric machinery has experienced not just decreases in sectoral share, but employment declines in the 1980s, after strong growth between 1976 and 1981. Except from 1977 through 1981, electronics has shown slower than average employment growth. Transportation equipment — largely aircraft in Arizona — has experienced only average growth except between 1984 and 1986, when increases in defense spending boosted the industry. Instruments is the only category to exceed average employment growth, with the fastest growth in the late 1970s.

Agriculture

Farming, a basic industry, has been in steady decline, while agricultural services, a non-basic sector, has seen modest increases in sectoral share. Much of its gain has occurred in landscape and horticultural services in the urban areas. Average pay in this industry, like farming, is low.

Mining

Employment, dominated by copper mining, has declined sharply, though salaries remain high. While employment has stabilized, the sectoral share of this basic industry will continue to decline.

Construction

Each of the three subsectors are highly cyclical. General contractors and heavy construction are relatively high-paying fields in which part of the work can be considered basic, but each is growing relatively slowly. In contrast, special trade contractors are experiencing rapid growth,

but the average pay is near the mean of all industries and less of the work can be thought of as basic.

Government

Federal government employment, both civilian and military, is basic. The average wage of the former is high, but that of the latter is relatively low. Both sectors have experienced slow growth. State and local government, which includes school teachers, is an average-paying, non-basic function which has experienced below average employment growth since the late 1970s, despite the creation of many jobs.

Services

Most of the services subsectors have participated in the rapid growth of the overall industry. Most are low-paying; only pieces can be considered basic in nature. Hotels and other lodging places is one sector that is basic; its employment gains from 1983 through 1987 were strong following average gains during the prior 15 years. The only high-paying segments of the services industry — health, legal, and miscellaneous services — each experienced healthy growth.

Other subcategories with higher than average gains included auto repair and service, amusements, and business services. The latter has a basic component and experienced the fastest growth of all. In most cases, growth was especially strong in the 1983–87 period.

Trade

Except for that portion of sales made to tourists, trade is a service and support industry. In most subcategories, it is very low-paying; wholesale trade is the major exception. In most cases, near-average employment growth has occurred. The fastest growth has occurred at eating and drinking places; the slowest at auto dealers and general merchandise stores.

FIRE

The only major segment of FIRE not to see above average employment growth is insurance carriers, the only grouping that may have a basic element. Real estate is the only subsector not having a higher than average wage; it experienced extremely large employment gains between 1984 and 1986. Growth in both the banking industry and in the insurance agents category were greatest in the mid-1980s.

TABLE 2

INDUSTRIES WITH GREATEST EMPLOYMENT GAINS
ARIZONA, 1980-87

	Change in Thousands	Percent Change	Basic Industry	Average Wage
1. Business Services	59	122%	no	Slightly less
2. Real Estate	49	98	no	Average
3. Health Services	38	63	no	Slightly high
4. Eating and Drinking Places	35	52	no	Very low
5. Special Trade Construction	34	67	part	Average
6. State and Local Government*	30	18	no	Average
7. Wholesale Trade	20	37	no	Slightly high
8. Miscellaneous Services	16	69	no	Slightly high
9. Hotels and Other Lodging	15	63	yes	Low
9. Personal Services	15	74	no	Low
9. Banking	15	57	no	Slightly high
9. Miscellaneous Retail	15	41	no	Low
TOTAL	494	39		

*Includes teachers

Source: Center for Business Research, College of Business, Arizona State University, from U.S. Department of Commerce, Bureau of Economic Analysis data.

TCPU

Within the transportation section, trucking and warehousing and air transportation are the two largest employers, each paying slightly higher than average wages. The former category experienced near average growth; a portion of the warehousing function is a basic industry. Air transportation, a non-basic industry, has grown rapidly since 1984.

Communications is a high-paying, non-basic industry in which rapid growth from 1977 to 1982 has been reversed by employment declines in recent years. The public utilities subsector, also a high-paying, non-basic industry, has consistently experienced average growth.

Growth leaders

The sectors with the greatest employment gains between 1980 and 1987 are summarized in Table 2. The listing would not be much different if it measured growth since 1970. Most of the sectors listed in Table 2 also would be on the list of highest percentage growth industries.

Service and support sectors that on net pay below average wages dominate Table 2. Business services alone accounted for 12 percent of all new jobs. Real estate positions formed an incredible 10 percent of the total, some 20,000 more jobs than would have been predicted by the trend in this sector's growth.

NON-WAGE EMPLOYMENT

According to BEA data, Arizona employment, including part-time workers, exceeded 1.75 million in 1987. More than 250,000 of the total were positions not included in wage and salary employment. For a number of years, this segment of the work force has grown more on a percentage basis than wage and salary employment. Growth was particularly strong from 1982 through 1985, when non-wage employment rose more than 10 percent per year, increasing by more than 20,000 in both 1984 and 1985.

Real estate has by far the largest number of non-wage workers, accounting for more than 25 percent. Real estate accounted for nearly one-half of the positions added during the 1984-85 boom. By 1987, however, the gain in non-wage real estate positions had slowed from more than 10,000 per year to less than 1,000.

Other industries with relatively large numbers of non-wage workers include business services, personal services, miscellaneous services, miscellaneous retail and special trade contractors. Of these, business services and personal services gained the greatest number of new non-wage positions between 1983 and 1987.

– Tom R. Rex
Research Manager

History lends perspective to current economy

The analysis of employment growth and sectoral change presented on pages 6 and 7 of this publication was limited to the period beginning in 1970 because of a lack of earlier employment data. Yet, a longer-term view can add perspective to current events. Thus, this article analyzes the performance of the Arizona economy since 1929, using personal income data produced by the U.S. Department of Commerce.

Specifically, misconceptions still exist concerning the behavior of the Arizona economy during times of national downcycles and the timing and ways in which the state's economy has evolved.

A review of 60 years worth of data reveals that the Arizona economy always has followed the national economic cycle, though to varying degrees. Part of the variance has to do with the degree to which Arizona's population growth exceeded the national average.

During the 1929–45 period, population growth in Arizona was not much greater than the national average. Economic growth thus was similar to the national average, including a deep decline during the depression of the 1930s (especially 1930–32), and a difficult adjustment period following World War II.

Since the war, Arizona's population and economic growth generally have greatly exceeded the national average. Between the late 1940s and early 1960s, four recessions occurred nationally. During the first three of these, the Arizona economy slowed, but did not contract. In the fourth, in 1960–61, Arizona's economic growth hardly slowed, due in large part to an overexuberant building boom much like that in the mid-1980s.

In the next national recession, in 1969–70, Arizona's economic growth slowed only modestly. Thus, Arizona developed a reputation of not suffering from recessions, a myth burst by the deep recession of 1974–75. In reality, the 1947–70 period was the aberration. The Arizona economy always is affected to some extent by national downturns and usually should be expected to fall into a recession.

Since the mid-1940s, the Arizona economy has been outperformed by the national economy at three different times: the 1974–75 recession, during the downsides of construction booms in 1963–65, and since 1987.

CHANGES IN STRUCTURE

Historically, the industrial composition of the Arizona economy was much different from the current one. Most of the changes occurred in the 1950s, however. By the early 1960s, the economic structure was much like that of today. These changes can be described primarily as shifts from agriculture and mining to manufacturing and, to some extent, construction. Most of the changes in the last 20 years have corresponded to those of the national economy, and can be summarized as a shift from usually high-paying basic industries to sometimes low-paying service-support sectors.

Basic industries maintained a share near 50 percent of the total economy through the late 1950s, even though shifts were occurring within the industries. Since then, however, the share has declined, to about 30 percent.

Summary by Industry

From around a 17 percent share through 1954, agriculture quickly declined to less than 7 percent by 1959 and since has fallen to barely more than 2 percent. Prior to the 1950s, agriculture generally followed the national economic cycle, but since then it has fluctuated at quite different times.

Though volatile, mining's share was around 10 percent into the early 1940s, then dipped to and held near 6 percent until the early 1960s before slowly declining to its current 1.5 percent share. Like agriculture, its cycles moved from being coincident with the national economy to responding to the industry's specific conditions.

After World War II, construction experienced a boom along with Arizona's population, and its sectoral share rose from 5 percent to a peak of 11 percent in 1960. It has cycled in a range slightly below this since 1960. In contrast to agriculture and mining, construction's cycles have become more predictable and more aligned with the national economic cycle. However, it has experienced significant slumps at times when national construction continued to expand in 1963–65 and since 1987, both in response to severe overbuilding.

Manufacturing was a small industry with only a 6 percent sectoral share until the late 1940s. Its most rapid growth in Arizona occurred in the 1950s, though its sectoral share continued to rise until 1966, when it peaked at 17 percent. Since 1969, however, its share has been less than 16 percent. It always has followed the national economic cycle, actually declining in every recession except 1960–61.

The share of the TCPU industry has been rather steady; a modest decline in the 1950s was the only change. The TCPU industry follows the national cycle to some extent.

Trade's share of the Arizona economy was around 18 percent until after 1970; it since has declined slightly to about 16.5 percent. Though it follows the national cycle, this industry rarely declines.

FIRE's share of Arizona's economy was only 3 percent until the mid-1950s, when it began a gradual increase to around 7 percent. Since the 1970s, it has followed the general economic cycle.

Services' share held at around 13 percent until the 1960s. Increases since then, particularly in recent years, have pushed its share to 25 percent. Though the industry follows the economic cycle, it has not declined since the Great Depression.

The government sector does not follow the economic cycle. The federal government's share, including military, has declined since the 1940s, to about 5 percent. State and local government, however, has expanded since the late 1950s, its share rising to 12 percent.

SUMMARY

While historically different from the national economy, the Arizona economy today is much like its national counterpart. Its industrial trends are comparable and it follows the same economic cycle. The main difference is that population growth is faster in Arizona, resulting in higher economic growth rates, particularly during booms when population growth is greatest.

A fast-growing area, however, needs basic jobs more than a stable area. The Arizona economy has not done well in this regard in the 1980s. An artificial and temporary construction-real estate boom gave the impression of prosperity, but the hard times of the last couple of years more accurately reflect the true state of the economy.

– **Tom R. Rex**
Research Manager

1987 wholesale trade census: concentration in Phoenix

Nearly 5,900 wholesale trade establishments were in business in Arizona during 1987, according to the U.S. Department of Commerce. These firms paid more than 64,600 workers $1.4 billion in wages and made sales of nearly $20.8 billion.

The increase in sales between 1987 and the previous census in 1982 was not as large as the gain in retail sales. Still, the 49 percent increase exceeded the inflation rate and the population gain during those five years.

On average, sales amounted to $3.5 million per establishment and $321,000 per employee, much larger than comparable figures for retail trade. Yet, the average wholesale trade establishment employed only 11 people, with a payroll per employee of $21,956.

Merchant wholesalers accounted for more than 80 percent of all wholesale trade establishments. The other establishments are either manufacturers' sales offices or agents and brokers. Manufacturers' sales offices employed more people on average than the other types. They also had the highest payroll per employee and the largest percent change in sales between 1982 and 1987 (see Table 1).

More than 20 percent of wholesalers were involved with groceries and related products. Other large industries included automobiles and motor vehicles, electrical goods, and professional and commercial equipment and supplies. The latter industry, along with drugs and machinery, was the fastest growing between 1982 and 1987.

The Phoenix metropolitan area accounted for more than 80 percent of the state's wholesale trade sales in 1987. Pima County's share was only 8 percent, much less than its share of the state's population.

Wholesale trade operations are heavily concentrated in the Phoenix area. The only other counties with sizeable wholesale trade industries are Coconino, which serves as the hub for northern Arizona, and Santa Cruz, which is a major gateway for trade with Mexico.

On a per capita basis, sales in Santa Cruz County easily were the highest in the state at more than $25,000. In contrast, per capita sales in most counties were only about $1,000 (see Table 2).

Within Maricopa County, wholesale trade operations are concentrated in Phoenix, though Tempe also had a greater share of sales than its proportion of the county's population. Tempe's sales were greater than those in Tucson, even though Tucson is a city nearly three times as large.

Though its population is less than 20,000, Nogales' sales were sixth highest in the state, exceeding those in Glendale and Chandler.

– Tom R. Rex
Research Manager

TABLE 1

1987 CENSUS OF WHOLESALE TRADE
ARIZONA

	Establishments	*Sales in Millions*	*Employment in Thousands*	*Payroll per Employee*	*1982-87 % Change in Sales*
TOTAL	5,874	$20,777	64.7	$21,956	49%
Merchant Wholesalers	4,888	12,309	53.5	20,705	48
Manufacturers' sales	437	6,137	8.0	30,720	57
Agents and brokers	549	2,331	3.2	20,926	38

Source: U.S. Department of Commerce, Bureau of the Census, and the Center for Business Research, College of Business, Arizona State University.

TABLE 2

1987 CENSUS OF WHOLESALE TRADE

	Establishments	*Sales in Millions*	*Per Capita Sales*	*Employment*	*Annual Payroll in Millions*
ARIZONA	5,874	$20,776	$6,077	64,687	1,420
Maricopa	3,984	16,991	8,630	49,119	1,141
Pima	911	1,607	2,510	8,470	161
Santa Cruz	180	628	25,120	1,726	30
Yuma	159	289	3,180	1,470	25
Yavapai	110	97	1,070	538	8
Coconino	109	589	6,470	949	16
Mohave	105	107	1,340	563	9
Pinal	84	165	1,540	505	10
Cochise	71	93	940	511	7
Navajo	61	111	1,480	407	7
Gila	42	33	830	146	3
Graham	32	32	1,330	170	3
La Paz	14	17	1,210	65	1
Apache	8	13	210	34	*
Greenlee	4	3	330	14	*

* Less than $1 million
Source: U.S. Department of Commerce, Bureau of the Census, and the Center for Business Research, College of Business, Arizona State University.

Economic growth still slow in April

Modest economic gains were the rule across Arizona in April, continuing the minimal economic growth of the past one and one-third years.

In April, the coincident economic index for Maricopa County rose 0.1 percent to a revised 148.6 (see below). Pima County's index climbed 0.4 percent to 137.0 (1982 = 100); the index for non-urban Arizona also advanced 0.4 percent, to 133.0.

Except in rural Arizona, increases during the first four months of 1989 were modest. In Pima County, the index advanced just 0.3 percent. Though larger at 1.0 percent, Maricopa County's gain still was quite subpar. The main difference in the urban counties' performances was stronger employment gains in the Phoenix area. In contrast, the index for rural Arizona rose 1.8 percent, more than its historical average. The unemployment rate declined more than in the non-urban counties, reaching the lowest level in April since August 1984 (8.3 percent).

Retail sales fell by roughly equal amounts across the state in April. Employment also declined in each area, though by more in non-urban Arizona. The overall index gains came from commercial building permits and the unemployment rate. Maricopa County's improvement in the value of commercial building permits was slight, reaching its second lowest value since the 1981-1982 recession. The improvement in the unemployment rate was sharper in rural Arizona.

The composite index for Arizona rose 0.2 percent in April to 143.8. Its gain during the first four months of the year was 1.0 percent.

Preliminary data for May show another month of sluggish employment growth, but another surprising improvement in the unemployment rate, with a particularly large drop in the Phoenix area. As a result, the coincident indexes probably rose at average to above average rates.

TABLE 1

MONTHLY PERCENT CHANGE COMPARISON

	Maricopa		*Pima*		*Non-urban*	
	Original	*Revised*	*Original*	*Revised*	*Original*	*Revised*
January 1988	.5%	–.3%	–.1%	–.7%	0%	–.5%
February	0	.1	.2	.2	–.2	.2
March	.2	.4	–.2	–.2	.5	.8
April	–.4	–.4	–1.2	–1.2	–1.4	–1.4
May	.2	.2	–.8	–.9	–.3	–.1
June	–.3	–.5	.4	0	0	–.2
July	.8	.6	.3	.2	–.7	–1.0
August	.1	.3	.2	.5	.2	.5
September	–1.2	–1.1	.2	.3	.3	.7
October	.6	.2	.8	.9	1.2	1.2
November	1.4	.7	1.8	1.0	2.2	1.4
December	.9	.5	.6	.3	.5	.3
January 1989	.3	.3	.1	.2	.4	.5
February	.3	.5	–1.0	–.8	–.2	0
March	.2	.1	.7	.5	1.1	1.0
April	—	.1	—	.4	—	.4

Source: Center for Business Research, College of Business, Arizona State University.

TABLE 2

ANNUAL PERCENT CHANGE COMPARISON

	Maricopa		*Pima*		*Non-urban*	
	Original	*Revised*	*Original*	*Revised*	*Original*	*Revised*
January 1988 ...	6.6%	4.6%	6.2%	4.8%	5.0%	3.5%
February	6.6	4.8	6.0	4.4	4.3	3.3
March	6.2	4.7	4.7	3.5	4.9	4.1
April	4.6	3.5	3.1	2.4	2.9	2.6
May	4.2	3.3	1.6	1.1	2.1	2.0
June	3.9	2.6	1.4	0.0	3.4	3.4
July	3.3	2.3	1.1	–0.2	2.3	2.5
August	3.2	2.2	1.3	0.4	1.7	2.0
September	1.6	1.0	0.6	0.1	1.1	1.8
October	0.9	0.1	0.7	0.1	0.6	1.2
November	2.7	1.0	1.7	0.4	3.0	2.7
December	2.9	0.9	2.3	0.6	2.4	2.0
January 1989 ...	2.7	1.5	2.5	1.5	2.8	3.0
February	3.0	1.8	1.3	0.5	2.7	2.9
March	3.0	1.4	2.2	1.1	3.4	3.0
April	—	2.0	—	2.8	—	4.9

Source: Center for Business Research, College of Business, Arizona State University.

REVISION

The entire history of the coincident economic indexes was revised by reducing the relative importance of the unemployment rate component from .33 to .16, and increasing the weight of the employment component rising from .33 to .50. In addition, the standardization factors (the average monthly change in the seasonally adjusted series of each of the four components) were updated.

Beyond the topics discussed in the March 1989 issue, the unemployment rate continues to exhibit unusually large monthly fluctuations. Further, the year-end revisions have been substantial in recent years.

The revised indexes smooth out both monthly and longer-term fluctuations, particularly in the urban counties in the last three or four years. Monthly differences in growth rates since the beginning of 1988 are shown in Table 1; their net effect has been to lower the annual growth rates in the urban counties (see Table 2).

– **Tom R. Rex**
Research Manager

Arizona leading index dropped in May

The Arizona Index of Leading Economic Indicators decreased in May to 116.9. The May number was 1.1 percent lower than the revised 118.2 number for April 1989 and 3.0 percent below the May 1988 number of 120.5 (1982 = 100).

Money supply, sensitive prices, inventories, hours worked, new orders, delivery times, production and residential building permits had a negative impact. Employment from the purchasing survey was unchanged this month.

OUTLOOK

The drop in the money supply accounted for a large part of the fall in the index this month; however the fact that eight out of the nine indicators were negative in May is definitely cause for concern. The Arizona economy will also be influenced by the slowing of the national economy. The index has yet to give a clear signal of recession but is pointing to even slower growth in the months ahead.

– Tracy L. Clark, *Economist*
Economic Outlook Center

The Arizona leading index is based on 9 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

TABLE 1

NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution*			
	Feb.	*Mar.*	*Apr.*	*May*
Delivery Time*	–.02	.09	–.05	–.09
Inventory Levels*	.02	–.09	.08	–.14
New Orders*	–.07	.12	.09	–.11
Production*	–.09	.09	.08	–.08
Employment*	–.06	.08	–.05	.00
Residential Building Permits	–.35	.32	–.40	–.03
Average Workweek, Manufacturing	.03	.00	–.07	–.14
Money Supply	–.14	–.08	–.32	–.41
Change in Sensitive Materials Prices	.00	.10	–.07	–.15
OVERALL INDEX CHANGE (%)	–.69	.62	–.69	–1.15

* The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the Purchasing Management Associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

Purchasing indicators show little movement in June

The Arizona economy slid into the summer, with its second month of slow/no growth. The bad news is that new orders received, production, and employment were at a standstill, as almost all the punch has left the economy. The good news is that the inflation rate, which has followed a declining trend over the first half of the year, continues to come down as the actions of the Federal Reserve to defuse upward price pressures have met with some success.

For an economy that enjoyed over six years of economic expansion (beginning January 1983), Arizona is doing surprisingly well. Excesses have developed, but the correction process has been underway for the past half year. Although the last half of 1989 may see a few months of overall economic contractions, with inflationary pressures largely wrung out of the economy, further reductions in interest rates should put the Arizona economy back on a moderate upward growth trend by the end of the year.

– Harold Fearon

TABLE 1

JUNE PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (June compared to May)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	33	61	6
Delivery time from vendors	20	73	7
Purchased materials inventory level	31	34	35
New orders received	34	33	33
Production	30	39	31
Employment	27	47	26
Purchases	40	29	31

Source: Purchasing Management Association of Arizona and the Purchasing Management Association of Southern Arizona.

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT (In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	4th Qtr.	61.103	1.7	5.0	NA	NA
Arizona - 1982 Dollars	4th Qtr.	48.005	0.0	0.9	NA	NA
COINCIDENT ECONOMIC INDEXES (1982 = 100)						
Arizona	April	143.8	0.2	2.5	NA	NA
Metropolitan Phoenix	April	148.6	0.1	1.9	NA	NA
Metropolitan Tucson	April	137.0	0.4	2.8	NA	NA
Non-urban Arizona	April	133.0	0.4	4.9	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	2nd Qtr.	125.9	1.8	5.0	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1982 = 100)						
Arizona	May	116.9	-1.1	-3.0	NA	NA
BUILDING PERMITS (Total Dollar Value in Thousands)						
Maricopa County	April	140,207	-45	-60	846,181	-21
Pima County	April	25,749	-17	-41	113,297	-37
Balance of State	April	71,096	10	35	228,534	10
Arizona	April	237,052	-32	-46	1,188,012	-18
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	April	1,908	-34	-63	4,600	-39
Pima County	April	219	-20	-52	858	-63
Balance of State	April	989	22	31	3,411	7
Arizona	April	2,216	-15	-44	8,869	-32
HOME SALES						
Maricopa County - Number	May	4,560	19	-14	18,820	-6
Maricopa County - Median Price	May	79,900	1.1	1.1	79,900	0.1
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	1st Qtr.	88	-3.3	0.0	NA	NA
Metropolitan Phoenix - Resale Homes	1st Qtr.	124	0.8	2.4	NA	NA
MORTGAGE INTEREST RATES (Conventional, 30-year, Fixed-rate)						
Maricopa County	June	10.1	-5.6	-2.9	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	1st Qtr.	2,048	0.5	2.0	NA	NA
Arizona	1st Qtr.	3,550	0.5	2.0	NA	NA
ELECTRICAL POWER SALES (In Millions of Kilowatt Hours)						
Arizona	April	3,443	6.6	15.6	13,283	7.8

NA = Not Applicable

Source: Center for Business Research, Arizona Real Estate Center, and Economic Outlook Center, College of Business, Arizona State University.

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